

REMARKS

35 U.S.C. §102(e) Rejection

Claims 1-5, 7-12, 16 and 18 stand rejected under 35 U.S.C. 102(e) as being anticipated by Asai et al. (US 6,376,052). This rejection should be withdrawn for at least the following reasons. Asai et al. do not teach or suggest each and every aspect as recited in the subject claims and, therefore, do not anticipate claims 1-5, 7-12, 16 and 18. MPEP §2131; Glaverbel Societe Anonyme v. Northlake Marketing & Supply, Inc., 45 F.3d 1550, 1554 (Fed. Cir. 1995) (“Anticipation requires identity of the claimed process and a process of the prior art; the claimed process, including each step thereof, must have been described or embodied, either expressly or inherently, in a single reference”); Richardson v. Suzuki Motor Co., 868 F.2d 1226 (Fed. Cir. 1989) (“The identical invention must be shown ... as is contained in the ... claim.”).

Independent claim 1 recites a method comprising, *inter alia*, dispensing an electrically conductive material in an opening extending through a conductively coated dielectric substrate (step d) and removing at least a portion of the conductive coating to form a nub of conductive material that extends above the surface of the substrate to form a core that is electrically joined face to face with another structure through the conductive material (step e). Asai et al. do not teach or suggest these claimed aspects.

In particular, Asai et al. do not teach or suggest dispensing the conductive material in such opening, forming such nub by removing at least a portion of the conductive coating, and then electrically joining the nub with another as recited in the subject claim. Instead, Asai et al. simply disclose filling through-holes 3 with a filler 5 (Fig. 2(e) and col. 19, ll. 57-67) and then forming a film 6 over the substrate and the filled through-holes 3 (Fig. 2(f) and col. 20, ll.1-6). Various other steps are then performed to create a printed wiring board in which the filler 5 is

covered by several layers (Fig. 3(a) – Fig. 5(b)). However, Asai et al. do not teach or suggest forming a nub of filler 5 after filling the through-holes 3 by removing conductive coating from the substrate 1 and then electrically joining the nub of filler 5 with another nub. In addition, Asai et al. do not teach or suggest dispensing an electrically conductive material in such opening as recited in the subject claim. Rather, Asai et al. disclose using a screen printing, drying, and curing technique to fill the through-hole 3 with the filler 5 (Col. 20, ll. 57-61).

In view of the above, it is readily apparent that Asai et al. do not teach or suggest each and every element as set forth in the subject claim. Therefore, the rejection of claim 1 (and claims 2-5, 7-12, 16 and 18, which depend therefrom) should be withdrawn.

Claim 9 further recites the electrically conductive coating is formed as two layers of different metals and the removal of the surface portion of the electrical conductivity coating is removed by differential etching. In contrast, Asai et al. teach removing layers 3, 6, and 7 through a single etching via etching with a solution containing a mixture of sulfuric acid and hydrogen peroxide (Fig. 3(b) and col. 32, ll. 60-64).

Claims 16 and 18 further recite removal of electrically conductive material residue remaining on the surface of the electrically conductive coating via polishing and chemical polishing, respectively. Asai et al. do not teach or suggest such claimed aspects. Rather, Asai et al. teach filling the through-hole, polishing the surface of the filler, and then removing the epoxy resin from the surface with chromic acid (Col. 38, ll. 4-9). Accordingly, this rejection should be withdrawn.

35 U.S.C. §103(a) Rejection

Claims 6 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. This rejection should be withdrawn for at least the following reasons. Asai et al. do not teach

or suggest all the limitations of the subject claims. MPEP §2143.03; *In re Royka*, 490 F.2d 981 (CCPA 1974) (To establish a *prima facie* case of obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art.).

In the subject Office Action, it is conceded that Asai et al. do not teach or suggest curing an epoxy to between about 20% and about 80% of complete cure (claim 6) or dispensing an electrically conductive material into the opening in multiple passes (claim 15). It is then asserted that it would have been obvious to one of ordinary skill in the art at the time of the invention to vary the extent of the cure and to perform multiple passes to fill the opening. However, no reference is provided to support such allegation, and Asai et al. do not provide any suggestion or motivation for the purported modification. MPEP §2143.01 (The fact that the claimed invention can be modified is not sufficient to establish *prima facie* obviousness and the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness). MPEP §2143 (To establish a *prima facie* case of obviousness, there must be some suggestion or motivation to modify the reference and the prior art reference must teach or suggest all the claim limitations. The teaching or suggestion must be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991)).

Newly Added Claims

Newly added claims 19 and 20 emphasize various aspects already presented in the claims as originally filed. No new matter has been added. As discussed above, Asai et al. do not teach or suggest forming a nub of conductive material in core members and joining the core members through joining the nubs. Entry and allowance of these claims is kindly requested.

It is believed that each of the claims now in the application is distinguishable one from the other and over the prior art. Therefore, reconsideration and allowance of the claims is respectfully requested.

Respectfully submitted,

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AMD:cg